

REMARKS

Favorable reconsideration of this application in view of the above amendments and the following remarks is respectfully requested. By this amendment, claims 11, 19, and 20 have been amended, claim 15 has been canceled without prejudice or disclaimer, and new claims 21-25 have been added. Applicants submit that no new matter has been added, and notice to that effect is solicited. Currently, claims 2-13 and 19-25 are pending of which claims 19 and 20 are independent.

Claims 5, 15, 19, and 20 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,745,103 to Smith (Smith '103). Claim 13 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Smith '103. Claims 2 - 4 and 9 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Smith '103 in view of Balasubramanian et al (Journal of Technology, 1991) (Balasubramanian article). Claims 6 - 8 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Smith '103 in view of U.S. Patent No. 5,432,893 to Balasubramanian et al. (Balasubramanian '893). Claim 10 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Smith '103 in view of U.S. Patent No. 6,011,540 to Berlin (Berlin '540). Claims 11 and 12 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Smith '103 in view of Gentile et al (Journal of Optical Society of America, 1990) (Gentile article). These rejections are respectfully traversed.

Independent claim 19 describes a method for converting an input digital color image having a set of possible input colors to an output digital color image having a set of palette colors. The number of palette colors is less than the number of possible input colors. The set of palette colors is determined based on the distribution of colors in the input digital image supplemented by a distribution of pre-defined important colors. The method includes a) determining a distribution of input colors from pixels in the input digital color image; b) providing the distribution of pre-defined important colors; c) combining the distribution of input colors with the distribution of pre-defined important colors to produce a supplemented distribution of colors that includes a greater emphasis on the important colors than does the distribution of input colors; d) determining a set of palette colors to be used in the formation of an output digital color image from the supplemented distribution of colors; and e) forming the

output digital color image by assigning each color in the input digital color image to one of the colors in the set of palette colors.

Claim 5, which depends from independent claim 19, relates to determining the supplemented distribution of colors by appending additional pixels to the input digital color image to form an enlarged input digital color image, where the color of the additional pixels is distributed according to the distribution of pre-defined important colors, and then determining the distribution of colors in the enlarged input digital color image.

New claims 21 and 22, which depend from independent claim 19, relate to collecting additional pixels from the target image and adding the collected additional pixels to the distribution of input colors to produce the supplemented distribution of colors, where the distribution of pre-defined important colors includes a target image of the important colors; and describe that the important colors are colors that are likely to appear in smoothly varying image regions within a digital color image, respectively.

New claim 23, which depends from independent claim 19, describes that the distribution of colors in the input digital color image, the distribution of pre-defined important colors, and the supplemented distribution of colors are histograms.

Independent claim 20 describes a computer storage medium having instructions stored therein for causing the computer to perform a method for converting an input digital color image having a set of possible input colors to an output digital color image having a set of palette colors, as described in independent claim 20. New dependent claims 24 and 25 describe collecting additional pixels from the target image and adding the collected additional pixels to the distribution of input colors to produce the supplemented distribution of colors, where the distribution of pre-defined important colors includes a target image of the important colors; and that the distribution of colors in the input digital color image, the distribution of pre-defined important colors, and the supplemented distribution of colors are histograms, as described in dependent claims 21 and 23.

Smith '103 describes a method and system for determining a single, unified color palette for simultaneously displaying multiple graphic objects with different color palettes for multimedia presentations. The single unified color palette includes 20 colors used by the graphical user interface (GUI) operating system of the multimedia device and up to 236 other

colors. The other 236 colors are determined based upon hashing each different color palette of each graphic object and exceeding a predetermined tolerance value in relation to colors already in the hash table.

However, this is not the claimed method for converting an input digital color image of independent claim 19 or dependent claim 5. (Since claim 15 has been canceled without prejudice or disclaimer, this rejection is moot as to claim 15, and withdrawal is respectfully requested.) Smith '103 lacks at least a) determining a distribution of input colors from pixels in the input digital color image; b) providing the distribution of pre-defined important colors; and c) combining the distribution of input colors with the distribution of pre-defined important colors to produce a supplemented distribution of colors that includes a greater emphasis on the important colors than does the distribution of input colors.

Firstly, as to a) determining a distribution of input colors from pixels in the input digital color image, even if the hash table of Smith '103 is the claimed distribution of input colors (Applicants maintain that this is not the case), the hashing in Smith '103 described above, does not determine a distribution of input colors using each pixel in the input digital color image. Rather, in Smith '103, each color in the color palette of each graphical object is subject to hashing. A color palette provides a set of available colors, i.e., colors available to display the image. Thus, each color in each color palette is hashed; a color may be in the color palette, but not in the graphic object to be displayed. Hence, this is not determining a distribution from pixels of an input digital color image.

As to b) providing the distribution of pre-defined important colors, for example, on page 8 of the specification, important colors are described as "colors that are of high importance to a human observer." (lines 7-8). The claimed important colors are not the "optimized colors" of Smith '103 referred to by the Examiner in the Action at page 3. Rather, "[s]kin-tone colors are an example of colors that might be included in the set of important colors," (lines 10-11) and "[i]n this case [described in the specification], the distribution of important colors should generally reflect the expected variations in the skin-tone colors." (lines 16-17). Additionally, the specification describes that "[o]ther colors that might be included in the distribution of important colors [] would be neutral colors and sky colors." (lines 17-19). Thus, Smith '103 does not describe b) providing the distribution of pre-defined important colors.

Finally, as to c) combining the distribution of input colors with the distribution of pre-defined important colors to produce a supplemented distribution of colors that includes a greater emphasis on the important colors than does the distribution of input colors, since Smith '103 does not provide the distribution of pre-defined important colors as in b), Smith '103 also does not provide c).

Further, this is not the claimed method for converting an input digital color image of claims 21 or 22. As to new claim 21, as pointed out above, the claimed important colors are not the "optimized colors" of Smith '103 referred to by the Examiner. Moreover, additional pixels can be provided in the form of a target image, as described in the specification, for example, at page 9, lines 3-13. The additional pixels can be appended to the input digital image and thus, result in an enlarged input digital image. Thus, Smith '103 does not describe that "the distribution of pre-defined important colors includes a target image of the important colors."

Moreover, since Smith '103 does not provide that "the distribution of pre-defined important colors includes a target image of the important colors," Smith '103 also does not provide the claimed "collecting additional pixels from the target image and adding the collected additional pixels to the distribution of input colors to determine a supplemented distribution of colors."

Finally, as to new claim 22, Smith '103 fails to describe or suggest that "the important colors are colors that are likely to appear in smoothly varying image regions within a digital color image. Rather, the colors in Smith '103 are colors found in the color palettes of various graphic objects.

Therefore, Smith '103 fails to describe or suggest that subject matter of independent claim 19 or claims 5, 21, or 22, which depend therefrom.

Similarly, for at least the reasons pointed out above as to independent claim 19 or dependent claim 21, Smith '103 fails to describe or suggest the subject matter of independent claim 20 and claim 24, which depends therefrom.

Therefore, Applicants submit that claims 5, 19 - 22, and 24 are allowable over Smith '103.

Further, as to claims 2 - 4 and 6 - 13, which depend from independent claim 19, Smith '103, alone or in combination with respective secondary references, fails to describe or suggest the claimed subject matter.

As to claims 2 - 4 and 9, as pointed out above with regard to independent claim 19, Smith '103 does not describe or suggest a), b), or c). The Balasubramanian article fails to overcome at least these deficiencies.

The Balasubramanian article relates to selecting colors for a limited image palette in which the initial number of image colors are reduced and there is pairwise merging of nearest neighbor clusters. The Balasubramanian article fails to describe or suggest combining the distribution of input colors with the distribution of pre-defined important colors to produce a supplemented distribution of colors that includes a greater emphasis on the important colors than does the distribution of input colors, as recited in independent claim 19. Thus, neither Smith '103 nor the Balasubramanian article, alone or in combination, describe or suggest the claimed subject matter. Therefore, claims 2 - 4 and 9, which depend from independent claim 19, are also not described or suggested by these references.

As to claims 6 - 8, again with regard to independent claim 19, Smith '103 does not describe or suggest a), b), or c) for at least the reasons set forth above. Balasubramanian ' 893 fails to overcome at least these deficiencies.

Balasubramanian '893 relates to sequential scalar quantization of a digital color image using mean squared error-minimizing quantizer density function. Also, Balasubramanian '893 lacks at least "determining a set of palette colors to be used in the formation of an output digital color image in response to the supplemented distribution of colors," as noted by the Examiner in the Action, as well as combining the distribution of input colors with the distribution of pre-defined important colors to produce a supplemented distribution of colors that includes a greater emphasis on the important colors than does the distribution of input colors, as recited in independent claim 19. Therefore, neither reference, alone or in combination, describes or suggests the invention of independent claim 19. Thus, claims 6 - 8 and 9, which depend from independent claim 19, are also not described or suggested by these references.

As to claim 10, which depends from independent claim 19, Smith '103 does not describe or suggest a), b), or c) as claimed in independent claim 19. Berlin '540, which relates to a

method of generating small, optimized look-up tables, fails to overcome at least these deficiencies. Hence, Smith '103, alone or in combination with Berlin '540, also fails to describe or suggest the invention of claim 10.

As to claims 11 and 12, as pointed out above with regard to independent claim 19, Smith '103 does not describe or suggest a), b), or c). The Gentile article fails to overcome at least these deficiencies.

The Gentile article relates to selecting a set of output colors in alternate color spaces chosen on a perceptual basis for digital devices for display or printing of color images. Gentile also lacks "determining a set of palette colors to be used in the formation of an output digital color image from the supplemented distribution of colors," as previously noted by the Examiner in the Action, as well as combining the distribution of input colors with the distribution of pre-defined important colors to produce a supplemented distribution of colors that includes a greater emphasis on the important colors than does the distribution of input colors. Therefore, Smith '103, alone or in combination with the Gentile article also fails to describe or suggest the inventions of claims 11 and 12.

Thus, claims 11 and 12, which depend from independent claim 19, are also not described or suggested by these references.

As to claim 13, Smith '103 fails to describe or suggest a), b), or c) as claimed in independent claim 19, and hence for at least these reasons, fails to describe or suggest the invention of claim 13.

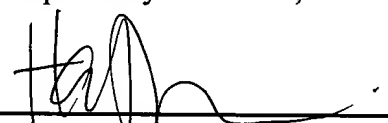
Accordingly, withdrawal of these rejections is respectfully requested.

Applicants submit that new claims 23 and 25 are allowable over the art of record. New claims 23 and 25 relate that "the distribution of colors in the input digital color image, the distribution of pre-defined important colors, and the supplemented distribution of colors are histograms." None of the applied art, Smith '103, the Balasubramanian article, Balasubramanian '893, Berlin '540, or the Gentile article, describe or suggest the subject matter of these claims. Further, Smith '103 teaches away from using histograms (see column 2, lines 5-15) in favor of a different approach. Thus, claims 23 and 25, which depend from independent claims 19 and 20, respectively, are not described or suggested by these references, and are in condition for allowance.

Applicants respectfully submit that all pending claims, claims 2-13 and 19-25, are in condition for allowance, and formal notice of such is respectfully requested. If the Examiner has any questions, the Examiner is respectfully requested to call the undersigned at the number listed below.

Applicants hereby petition for any extension of time which may be required to maintain the pendency of this case, and any required fee for such extension is to be charged to Deposit Account No. 05-0460.

Respectfully submitted,


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